

IN THE CLAIMS

1. (currently amended): A semiconductor apparatus which protects a first-conductivity-type MOS output transistor against a surge entering through an output electrode connected to a drain of said first-conductivity-type MOS output transistor, said apparatus comprising:

a first-conductivity-type MOS protection transistor having a drain connected to the drain of said first-conductivity-type MOS output transistor, a source connected to a source of said first-conductivity-type MOS output transistor, and a gate connected to a second-conductivity-type layer under a gate of said first-conductivity-type MOS output transistor;

wherein the gate of said first-conductivity-type MOS protection transistor is connected by an electrode wiring to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

2. (original): The semiconductor apparatus according to claim 1, wherein said first-conductivity-type MOS output transistor and said first-conductivity-type MOS protection transistor are of an SOI structure.

3. (original): The semiconductor apparatus according to claim 2, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

4. (canceled)

5. (original): The semiconductor apparatus according to claim 1, wherein the drain of said first-conductivity-type MOS protection transistor is formed closer to the output electrode than the drain of said first-conductivity-type MOS output transistor.

6. (original): The semiconductor apparatus according to claim 1, wherein said first-conductivity-type MOS protection transistor is higher in electrostatic destruction withstand voltage than said first-conductivity-type MOS output transistor.

7. (original): The semiconductor apparatus according to claim 6, wherein said first-conductivity-type MOS output transistor and said first-conductivity-type MOS protection transistor are of an SOI structure.

8. (original): The semiconductor apparatus according to claim 7, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

9. (original): The semiconductor apparatus according to claim 6, wherein the gate of said first-conductivity-type MOS protection transistor is connected by an electrode wiring to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

10. (original): The semiconductor apparatus according to claim 6, wherein the drain of said first-conductivity-type MOS protection transistor is formed closer to the output electrode than the drain of said first-conductivity-type MOS output transistor.

11. (original): The semiconductor apparatus according to claim 10, wherein said first-conductivity-type MOS output transistor and said first-conductivity-type MOS protection transistor are of an SOI structure.

12. (original): The semiconductor apparatus according to claim 11, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

13. (original): The semiconductor apparatus according to claim 10, wherein the gate of said first-conductivity-type MOS protection transistor is connected by an electrode wiring to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

14. (original): The semiconductor apparatus according to claim 13, wherein said first-conductivity-type MOS output transistor and said first-conductivity-type MOS protection transistor are of an SOI structure.

15. (original): The semiconductor apparatus according to claim 14, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.

16. (original): A semiconductor apparatus which protects a first-conductivity-type MOS output transistor and a second-conductivity-type MOS output transistor against a surge entering through an output electrode connected to each of drains of said first-conductivity-type MOS output transistor whose source is connected to ground and said second-conductivity-type MOS output transistor whose source is connected to a power supply, said apparatus comprising:

a first-conductivity-type MOS protection transistor having a drain connected to the drain of said first-conductivity-type MOS output transistor, a source connected to a source of said first-conductivity-type MOS output transistor, and a gate connected to a second-conductivity-type layer under a gate of said first-conductivity-type MOS output transistor; and

a second-conductivity-type MOS protection transistor having a drain connected to the drain of said second-conductivity-type MOS output transistor, a source connected to a source of said second-conductivity-type MOS output transistor, and a gate connected to a first-conductivity-type layer under a gate of said second-conductivity-type MOS output transistor.

17. (original): The semiconductor apparatus according to claim 16, wherein said first-conductivity-type MOS output transistor, said first-conductivity-type MOS protection transistor, said second-conductivity-type MOS output transistor, and said second-conductivity-type MOS protection transistor are of an SOI structure.

18. (original): The semiconductor apparatus according to claim 17, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor; and

a first-conductivity-type area connected to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor, and

wherein the gate of said second-conductivity-type MOS protection transistor is connected via said first-conductivity-type area to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

19. (original): The semiconductor apparatus according to claim 16, wherein the gates of said first-conductivity-type MOS protection transistor and said second-conductivity-type MOS protection transistor are connected by electrode wirings respectively to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor and to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

20. (original): The semiconductor apparatus according to claim 16, wherein the drains of said first-conductivity-type MOS protection transistor and said second-conductivity-type MOS protection transistor are formed closer to the output electrode than the drains of said first-conductivity-type MOS output transistor and said second-conductivity-type MOS output transistor.

21. (original): The semiconductor apparatus according to claim 16, wherein said first-conductivity-type MOS protection transistor and said second-conductivity-type MOS protection transistor are higher in electrostatic destruction withstand voltage than said first-conductivity-type MOS output transistor and said second-conductivity-type MOS output transistor.

22. (original): The semiconductor apparatus according to claim 21, wherein said first-conductivity-type MOS output transistor, said first-conductivity-type MOS protection transistor,

said second-conductivity-type MOS output transistor, and said second-conductivity-type MOS protection transistor are of an SOI structure.

23. (original): The semiconductor apparatus according to claim 22, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor; and

a first-conductivity-type area connected to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor, and

wherein the gate of said second-conductivity-type MOS protection transistor is connected via said first-conductivity-type area to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

24. (original): The semiconductor apparatus according to claim 21, wherein the gates of said first-conductivity-type MOS protection transistor and said second-conductivity-type MOS protection transistor are connected by electrode wirings respectively to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor and to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

25. (original): The semiconductor apparatus according to claim 21, wherein the drains of said first-conductivity-type MOS protection transistor and said second-conductivity-type MOS protection transistor are formed closer to the output electrode than the drains of said first-conductivity-type MOS output transistor and said second-conductivity-type MOS output transistor.

26. (original): The semiconductor apparatus according to claim 25, wherein said first-conductivity-type MOS output transistor, said first-conductivity-type MOS protection transistor, said second-conductivity-type MOS output transistor, and said second-conductivity-type MOS protection transistor are of an SOI structure.

27. (original): The semiconductor apparatus according to claim 26, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor; and

a first-conductivity-type area connected to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor, and

wherein the gate of said second-conductivity-type MOS protection transistor is connected via said first-conductivity-type area to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

28. (original): The semiconductor apparatus according to claim 25, wherein the gates of said first-conductivity-type MOS protection transistor and said second-conductivity-type MOS protection transistor are connected by electrode wirings respectively to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor and to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

29. (original): The semiconductor apparatus according to claim 28, wherein said first-conductivity-type MOS output transistor, said first-conductivity-type MOS protection transistor, said second-conductivity-type MOS output transistor, and said second-conductivity-type MOS protection transistor are of an SOI structure.

30. (original): The semiconductor apparatus according to claim 29, comprising:

a second-conductivity-type area connected to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor; and

a first-conductivity-type area connected to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor,

wherein the gate of said first-conductivity-type MOS protection transistor is connected via said second-conductivity-type area to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor, and

wherein the gate of said second-conductivity-type MOS protection transistor is connected via said first-conductivity-type area to said first-conductivity-type layer under the gate of said second-conductivity-type MOS output transistor.

31. (new): The semiconductor apparatus according to claim 1, wherein the gate of said first-conductivity-type MOS protection transistor is directly connected by the electrode wiring to said second-conductivity-type layer under the gate of said first-conductivity-type MOS output transistor.